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# The blood donation: Knowledge and attitude of female students at the faculty of applied medical sciences, Al Baha University, Saudi Arabia

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**ABSTRACT**

**Background/aim:** Blood donation is one of the main ways to save lives. The students at health faculties supposed to have well knowledge and positive attitude about blood donation. Our study aimed to evaluate levels of knowledge and attitude about blood donation among female students at Faculty of Applied Medical Sciences, Al Baha University, Saudi Arabia.

**Methods:** This is a non-experimental, cross-sectional survey it was conducted in September to October 2022. A number of 70 students participated in this study from female section at the Faculty of Applied Medical Sciences at Al Baha University. A questionnaire was adopted and validated then it was prepared and distributed online. The authors used SPSS program for analysis. The demographic characteristics of students were assessed and shown in tables and figures. The relationships were also assessed and analyzed. **Results:** The study findings demonstrated that 34.0% of female students had good 31.0% had average and 35% had poor knowledge related to blood donation. Among them 33% had a well attitude, 50% had a fair one and 17% had poor attitudes toward blood donation. **Conclusions:** The study concluded that more than one-third of the female students in Faculty of Applied Medical Sciences at Al Baha University had good knowledge about blood donation and the majority of them had positive attitude towards blood donation.

**Keywords:** Blood donation, Knowledge, Attitude, Students, Saudi Arabia,

**1. INTRODUCTION**

Blood transfusion is very important in the concept of health care, as it protects the lives of millions of people annually all over the world. Blood transfusion allows for many challenging operations that improve efficiency and average

life span in those patients who suffer from many serious chronic conditions and acute illnesses (Al-Dorzi et al., 2019). The need for blood is increasing daily due to the increasing population and advancements in medical sciences. One pint of blood donation could save up to three lives. The main three components of blood are plasma, platelets and red blood cells which is not manufactured and only obtained from generous donors (Amatya et al., 2013).

The number of active blood donors has decreased over the last several decades, so it is unable to meet the increased demands for blood transfusions. Moreover, most people do not donate blood voluntarily; they only donate to their relatives or friends in need of a transfusion. Very few blood donors are paid (Gader et al., 2011). Furthermore, the issue of safety related to blood donations and transfusions, such as avoiding Transfusion Transmissible Infections (TTI), is a crucial concern, especially in developing countries; thus, blood transfusion is limited to relatives with special precautions (Yaddanapudi et al., 2014).

According to a study conducted in Faisalabad, Pakistan in 2018, 89.8% of female participants had never donated blood and only 0.4% had donated blood regularly (Tariq and Jawed, 2018). In Ethiopia, a study conducted in 2018 showed that most of the participants had adequate knowledge about and a positive attitude regarding blood donation. In Saudi Arabia, one study found that blood donors had more knowledge about blood donation when compared to non-donors (Melku et al., 2018). One previous study found that most respondents had sufficient knowledge about blood donation, among them more than 99% believed the importance of blood donation for the communities and about 30% of them have donated blood (Alsalmi et al., 2019). Another study conducted in Hail in 2017, showed that low awareness of participants on blood donation and most of them never donated blood previously; while students in medical field had a positive attitude of blood donation (Alanazi et al., 2018). Furthermore, another study conducted in the same region showed that three quarters of participants aware the risk of virus's transmission during blood donation. Negative attitudes toward blood donation included donating only for request of relatives (24%), donations by money (29.7%) and belief in the possibility of getting viruses (34%) (Chauhan et al., 2018).

The shortage of blood supply in hospitals and blood donation centers may lead to global health problems for recipients. The main reasons for this shortage are associated with the need to recruit donors and keep them motivated and committed to donating blood for blood transfusions (Gebresilase et al., 2017). Therefore, the present study aimed to assess knowledge and attitude of blood donation among female students at the Faculty of Applied Medical Sciences (FAMS), Al Baha University, Saudi Arabia.

## 2. METHODS

### **Study design**

This is a non-experimental, cross-sectional survey it was conducted on the female students at FAMS, Al Baha University.

### **Study place and time**

The study was carried out at the female campus at Buhur, FAMS, Al Baha University, Al-Baha, Saudi Arabia. It was conducted in the period between September and October 2022.

### **Study Population**

The study was conducted among female students of FAMS, Al Baha University.

### **Samplings and Sample size**

The participants were 70 female students who met the inclusion criteria including the age above 18 years and agreement. A convenience sampling technique was used to select the faculty and the selection of students participated was based on their responses to the sent questionnaire.

### **Data collection**

The data was collected by adopted validated questionnaire, which consists of three parts: Part I: Demographic characteristics: It includes information such as age, marital status, academic year, suitable age for blood donation. Part 2: knowledge on blood donation (Mousavi et al., 2011; Tariq and Jawed, 2018; Melku et al., 2018) it consists of 12 questions regarding general knowledge of blood donation. The total score was calculated by adding up the questions assessing the female students' knowledge and each correct answer was awarded 1 point and unanswered questions or wrong answers were awarded 0 points. The total score of knowledge was 12 and was categorized as the scores were categorized into "Good," "Fair" and "Poor" based on the percentage of >75%, 60%–75% and <60%, respectively. The third part: Students' attitudes towards blood donation (Melku et al., 2018; Tariq and Jawed, 2018). It consists of 10 questions regarding attitudes on blood donation. The domains were separately calculated according to

female students' responses to each item, where each correct answer was given a score of "1" and a wrong answer a score of "0". Attitude of blood donation: The overall scores were categorized into "Good", "Fair" and "Poor" based on the percentage obtained >75%, 60%–75%, <60% respectively

### Validity and reliability of the tools

Content validity was tested by selecting a board of five Medical and Surgical Nursing experts with more than ten years of experience in the field to assess the tools' clarity, feasibility and applicability. The validity index of this tool was 88% and it was reliable with alpha Cronbach's above 0.90.

### Statistical analysis

The data was analyzed using SPSS program, version 22. The individuals' demographic traits and information sources were examined and the results were expressed as frequencies and percentages. The Chi square and Two Sample Kolmogorov Smirnov tests were used to look at the homogeneity of demographic characteristics. The subscales of knowledge and practice were compared using the U test and analysis of covariance (ANCOVA). The ANCOVA was run with the assumptions in mind, correcting the influence of pre test scores as a covariate variable and then comparing the adjusted means. P values less than 0.05 was considered as significant.

## 3. RESULTS

Table 1 shows that more than half (55.8%) of the studied female students were with a mean age of  $21.46 \pm 2.34$  years and (95.71%) were not married. Regarding their academic year (32.86%) of the studied female students were in the fourth level. Concerning their suitable age for blood donation, it was observed that (81.42%) of the studied female students reported that 18 to 24 was the suitable age for blood donation. As regards attending any blood donation camps, (38.57%) of the studied female students stated that attended blood donation camps and (66.6%) attended once. Finally, it was observed that 88.55% of the studied female students know their blood type and 40.32% were O+.

**Table 1** Percentage Distribution of the Studied female students' demographic Data (n=70)

Items	No.	%
Age / year	Mean $\pm$ Standard deviation	$21.46 \pm 2.34$
Marital status		
Married	3	4.29
Single	67	95.71
Academic year		
2	19	27.15
4	23	32.86
6	6	8.57
8	22	31.42
Suitable age for blood donation		
18-24	57	81.42
25-34	11	15.73
35-45	2	2.85
More than 50	0	0.0
Have you ever attended any blood donation camps?		
Yes	27	38.57
No	43	61.43
If the answer is yes, how many times have you attended? (n=27)		
Once	18	66.6
Twice	4	14.85
Three times	4	14.85
More than three times	1	3.70
Do you know what your blood type		

Items	No.	%
Yes	62	88.55
No	8	11.45
If the answer is yes, mention the name of your blood type name (62)		
AB-	0	0
AB+	3	4.28
B-	0	0
B+	11	11.74
A-	0	0
A+	20	32.25
O-	3	4.28
O+	25	40.32

**Table 2** Percentage Distribution of the Studied female students' knowledge regarding blood donation (n=70)

S. No	Items	N	%
1	What is a safe blood donation?	35	50.0
2	Who is responsible for safe blood donation?	68	97.14
3	What is the commonest blood type? (General donor; who can donate to all blood types)	64	91.42
4	What are the most common components of blood that is donated?	58	82.85
5	What is the minimum acceptable weight to donate blood?	57	81.42
6	What is the amount taken from the donor?	36	51.42
7	How often can a person donate?	23	32.85
8	What is the time required to withdraw the blood sample when donating?	39	55.71
9	Who is better to donate a blood?	34	52.85
10	Can diseases be transmitted through the blood?	70	100.0
11	Does donating blood lead to anemia?	18	25.71
12	What are the benefits for a blood donor?	40	57.14

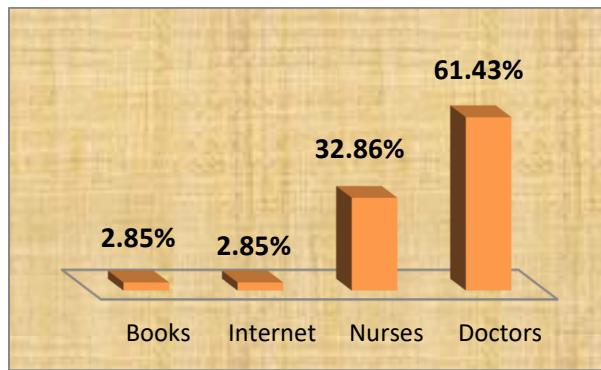
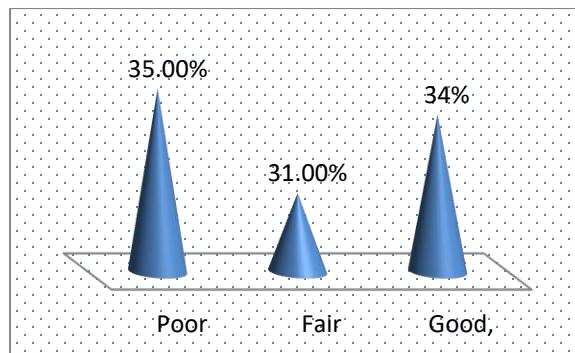
From (Table 2), it was observed that (50.0%) of the Studied female students know safe blood donation, all of them reported diseases to be transmitted through the blood donation and 57.14% reported the correct time required to withdraw the blood sample. Table 3 revealed that the demographic data was a significant positive predictor effect on knowledge at p-value=0.008 as well as the intent level and attitude of students was significantly positive predictor effect on knowledge level at p-value=0.001.

**Table 3** Best Fitting Multiple Linear Regression Model for demographic characteristics and students' knowledge and attitude towards blood donation

Items	Unstandardized Coefficients		Standardized Coefficients	t test	p value
	B	Std. Error			
Constant	1.350	.158		8.571	<0.001
Knowledge	0.094	.034	0.325	02.774	0.008
Intent level	.432	.096	.520	4.463	<0.001
Attitude	.436	.097	.524	4.475	<0.001

*R-square = 0.33; Model ANOVA: F=13.057, p<0.001*

Figure 1 Illustrated that 61.43% of the studied female students' preferred methods of receiving information regarding blood donation was from doctors. Figure 2 Revealed that 34.0% of the studied female students had a good, 31.0% had average and 35% had poor knowledge on blood donation. Figure 3 Illustrated that, 33% of the studied female students had a good attitude, 50% had fair and 17% had poor attitudes of blood donation.

**Figure 1** The source of information regarding blood donation (n=70)**Figure 2** Knowledge Level among female students regarding blood donation (n= 70)

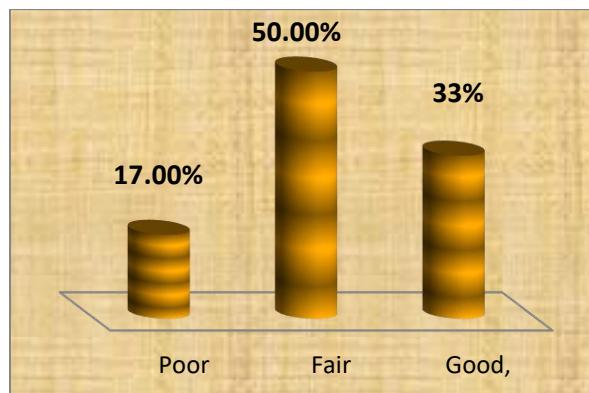


Figure 3 Total attitude Level of the studied Female Students regarding blood donation (n= 70)

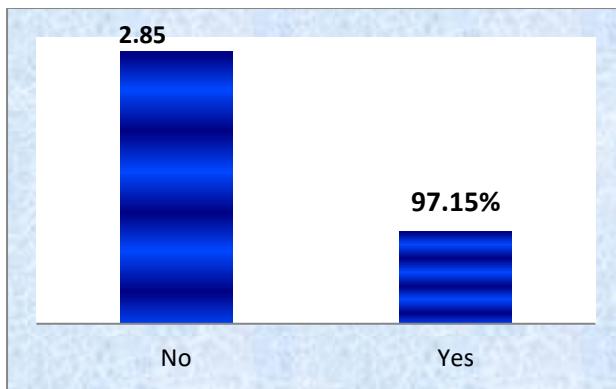


Figure 4 Total attitude Level among Female Students regarding blood donation intent levels (n= 70)

#### 4. DISCUSSION

The present study revealed that more than half of the participants were with a mean age of  $21.46 \pm 2.34$  years. From the researchers' point of view, this age could cause a fear of needles as the main reason that the students thought caused a low rate of donating blood. These results are similar to the findings of a study conducted by Raed et al., (2021) who mentioned that the mean age of the students was around 22 years in the study conducted at King Abdulaziz University, Saudi Arabia (Felimban et al., 2019). The present study showed that more than three fifths of the studied female students' preferred receiving information regarding blood donation from doctors. These results are not similar to findings conducted by Hesamedin et al., (2018) on the awareness of and attitude of blood donation among students at the Semnan University of Medical Sciences, where more than half of the students preferred social media as the best method of receiving information of blood donation (Majdabadi et al., 2018) in a similar study by Verma et al., (2016) on attitude and practice of Indian adults on voluntary blood donation where the television which was identified as the most influential media for encouraging people to donate blood.

Concerning knowledge, it was found that half of the female students at FAMS know safe blood donation and all of them mentioned appropriately the diseases could be transmitted through the blood donation. These results are similar with the study conducted by Raed et al., (2021) who mentioned that students responded yes to a question asking about the relationship between blood donations and transmitting diseases (Felimban et al., 2019). Similarly, Jacobs and Berege, (2015) found in Tanzania and areas where HIV is a common problem, that people are, typically discouraged from donating blood because they are afraid of getting diseases to the donors.

The present study revealed that slightly more than one third of female students had a well knowledge related to donating blood. From the researchers' point of view, this reflected those female students need to be updated by emphasizing voluntary blood donation and organize regular continuing medical education programs to bridge the knowledge gap and motivate the students regarding voluntary blood donation. These findings are similar to the finding reported by Rizwan et al., (2022) who reported that knowledge of blood donation was not adequate among the study population and only one third of the participants had good knowledge. It is also similar to the findings of one Indian study conducted by Devi et al., (2018) who mentioned that only one third of the medical students showed adequate knowledge regarding blood donation. These results are generally the same with the

findings of another study conducted in Iran by Hashemi et al., (2013) who said that only more than ten percent of the participants had a good level of awareness towards blood donation.

The present study revealed that one third of female students had a positive attitude and half of them had fair attitude. These results are in the same line with a study conducted in Chennai, India by Uma et al., (2013) which showed that most of the students responded positively about donating blood. So, students should be provided with opportunities by holding regular blood donation camps and awareness campaigns, which may help boost the motivation to voluntarily donate blood and create a positive attitude toward voluntary blood donation. Also, Rizwan et al., (2022) found that students displayed adequate understanding and a good attitude of donation of blood. Furthermore, other studies showed higher acceptable attitude among participants such as Hosain et al., (1997) in Bangladesh, which showed that majority of the participants had a positive attitude towards blood donation and Lownik et al., (2012) in Chile which showed that majority of blood donors had a positive attitude towards blood donation. Regarding intent level toward blood donation among the female student, the study result proved that almost all of them had high intent level toward blood donation. This result, consistent with findings of Samira et al., (2018) and Kanwal et al., (2019) who reported that majority of students agreed that they are willing to donate blood in the future.

The study has some limitations includes, that it was conducted among students in studied in the health faculties, it was conducted in only one university as convenience, which could limit its generalizability. Furthermore, investigating students' attitude could be best measured by qualitative approaches. The blood donation is one of the main ways to save lives. It is used to manage injured or ill patients. Identifying the community knowledge and attitude towards donating blood is an essential and cornerstone to ensure we meet the need of blood products.

## 5. CONCLUSION

Based on the findings of the current study, the study concluded that only about one third of the female students had good knowledge about blood donation while the majority had a positive attitude toward blood donation. The study suggests organized blood donation educational program and camps are needed to improve female students' knowledge and attitudes toward blood donations.

### Acknowledgements

The authors acknowledge female students participated in this study.

### Authors' contributions

All authors participated in this study; MSH is the principal investigator of this study. WAMA, AAJ and GAS, prepared the tools of data collection, wrote the final report and got the ethical approval. RGA, AEE and RK prepared the preliminary report while TS analyzed the data.

### Ethical Approval

The study was ethically approved from the ethical committee of Deanship of Scientific Research at Al Baha University, Al-Baha, Saudi Arabia. It was approved on 19 May 2022, NO. 43840044.

### Informed Consent

Verbal informed consent was taken from female students. They first agreed to participate after explaining the purpose of the study.

### Funding

This study has not received any external funding.

### Conflict of interest

The authors declare that there is no conflict of interests.

### Data and materials availability

All data sets collected during this study are available upon reasonable request from the corresponding author.

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